

REMARKS

By the foregoing amendments claims 1, 3, 4, 5, 26, 30, 32, 34, 36 and 39 have been amended. Claims 2, 7, 31 and 33 are cancelled. Thus, claims 1, 3-6, 8-30, 32 and 34-39 are in the application.

The application claims were rejected in the outstanding Office Action under 35 U.S.C. §103(a) as being unpatentable over Quinlan, U.S. 4,020,724, in view of Simpson et al., U.S. 5,429,577, and Koelsch, U.S. 5,875,699. The references were relied upon in the manner set forth on pages 2-4 of the Office Action. This rejection is hereby traversed and reconsideration thereof is respectfully requested in view of the above amendments to the claims and Applicant's remarks set forth below.

The present invention is directed to an improved modular/configurable rotary die, a rotary die cutter employing the rotary die and a method for producing corrugated carton blanks from a stock sheet of corrugated material utilizing the rotary die and rotary die cutter. As discussed in detail in the application specification, as compared to the prior art, the present invention provides unique flexibility and significant cost savings. That is, a different dedicated die, with its own unique type and/or configuration of blades, need not be created to produce each specific type and size of carton blank as in the prior art. Because of the modular/configurable nature of the rotary die of the invention, the invention makes it possible to change the type/size of some of the plurality of die components to produce a different size/type carton blank without the need for a dedicated die for each size or type carton blank. The cited references do not render obvious the present invention as recited in the claims as amended under 35 U.S.C. §103(a).

As discussed on page 5 of the application specification, the modular/configurable rotary die of the preferred embodiment of the invention is comprised of individual die components that are mounted directly on the roller of a standard rotary die cutter. There are three dimensions to a carton. Therefore, the modular/configurable rotary die of the invention utilizes three basic die component types to produce carton blanks, e.g. length die-components, height die-components and width die-components. Utilizing varying sizes of these die components produces varying sizes of carton blanks. Utilizing varying types of the width die-component produces varying types of carton blanks as stated at the top of page 6 of the specification. These features of the present invention, previously recited in dependent claims 2 and 31 are now recited in independent claims 1, 26 and 30 as amended. That is, the recited plurality of die components of the rotary die include, with reference to the three dimensions of a carton to be erected from the corrugated carton blank formed by the rotary die, at least one length die component which determines the length of the carton, at least one height die component which determines the height of the carton, and at least one width die component which determines the width of the carton. The cited references do not teach or suggest this rotary die, rotary die cutter and method of the invention.

The primary reference to Quinlan does not disclose a rotary cutting die with a plurality of die components with blades which cooperatively function to form a corrugated carton blank from a stock sheet of corrugated material as disclosed and claimed by Applicant. This functional language of the claimed

die in the application claims must be given weight. Quinlan's rotary cutting die is merely for cutting flaps in previously slotted carton blanks.

The dies 10, 10', 11 and 11' in Quinlan are four different dies, usable singly or conjunctively to cut the flaps of a slotted carton blank. Each of four Quinlan dies has to be separately positioned/aligned with each other so that knife blades can be positioned/aligned as needed to perform cutting functions. Quinlan's invention prohibits interlocking because the dies must be separate and apart to allow for proper individual positioning and alignment. The four dies of Quinlan are not a plurality of die components of a single die for cutting a carton blank from a stock sheet of corrugated material as in the present invention, which die components are interlocked and include at least one length die component which determines the length of the carton, at least one height die component which determines the height of the carton, and at least one width die component which determines the width of the carton as recited in the application claims as amended. As discussed in Applicants specification, see page 5, these features of the present invention enable the production of varying types and/or sizes of carton blanks by changing only selected ones of the plurality of die components of a die, thereby eliminating the need for a dedicated die for each specific type and/or size of carton blank. As noted at the bottom of page 5 of Applicant's specification, with Applicant's rotary die and rotary die cutter employing the same, utilizing varying sizes of these die components produces varying sizes of carton blanks. Utilizing varying types of the width die component produces varying types of carton blanks. This can be seen from the numerous examples in Applicant's specification and drawings.

The newly applied secondary reference to Simpson discloses a conventional dedicated die that cannot be adjusted to produce varying sizes of carton blanks and/or varying types of carton blanks. To produce a different type/size carton blank in Simpson et al. the first die must be removed and another dedicated die must be mounted. The die rule members 29 in Simpson et al. are conventionally mounted within slots of die board 26, see column 4, lines 58-63. The die board 26 is in turn mounted on the roll 12 of the rotary die apparatus 10, Figure 1 of Simpson et al. In contrast, in Applicant's disclosed embodiments the individual die components of a die can be changed to produce a different size or type carton blank/carton and the die components of a die are mounted directly on the roller of the rotary die cutter and interlocked with one another as recited in the claims as amended, see particularly dependent claims 4 and 39 as amended, for example.

The patent to Koelsch discloses a cutting die mounting system which also employs a dedicated die for each different (size/type) product, see column 4, lines 2-9. The dedicated die may be formed of two sections when the die is too large for the drum's circumference as discussed in the reference with interlocks 90, Figs. 2 and 4, between the sections. However, Koelsch does not teach or suggest the modular/configurable rotary die, rotary die cutter and method of the present invention as recited in the claims as amended wherein the rotary die is formed by a plurality of die components which are interlocked with one another to cooperatively form a corrugated carton blank in a rotary die cutter from a stock sheet of corrugated material, the plurality of die components including, with reference to the three dimensions of a carton to be erected from a corrugated carton blank formed

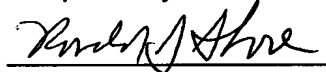
by the rotary die, at least one length die component which determines the length of the carton, at least one height die component which determines the height of the carton, and at least one width die component which determines the width of the carton.

In view of the above amendments and remarks, it is respectfully submitted that the application claims as amended patentably define over the cited references under 35 U.S.C. §103. Accordingly, reconsideration and allowance of the claims as amended is requested.

A Petition for Extension of Time has been filed with this Amendment to permit the timely filing of the Amendment.

Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 01-2135 (Case No. 1011.42224X00) and please credit any excess fees to such deposit account.

Respectfully submitted,



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Attachments